

## REMARKS

This is in response to the official action dated April 2, 2003. Reconsideration in view of the following is respectfully requested.

The examiner cites U.S. Patent No. 5052662 to Doi in combination with US 4887699 to Ivers, in rejecting claims 9-15. Applicant has now incorporated the limitation of claim 15 into claim 9, so that the main independent claim requires an arrangement wherein when the damping function is turned off, the masses are coupled without any damping function. In the examiner's comments as to claim 15, Doi is characterized as having this function 'to the same extent' as the applicant, based on the examiner's assumption that chamber 314,315 of applicant's Fig. 3 functions in the same manner as Doi's elastic chambers. As set forth below, it is respectfully submitted that this assumption is not correct.

The damping effect of a damper is caused by the flow of a fluid. The flowing of the fluid is coupled with turbulence. The turbulence of the fluid leads to an energy dissipation. Thus, every time the fluid flows, a damping effect is present.

Attached as Appendix A is a colored enlargement of Fig. 1 of Doi. The damper according to Doi generally consists of a lower portion (blue encased) and an upper portion (red encased) which are connected by an elastic body 16 (yellow colored). If no voltage is applied to close an orifice passage 32 or 30a, a flowing of the fluid through an orifice passage 32, 30a is possible leading to a damping effect as described above. Even if both orifice passages 32, 30a are closed, a flowing of the electrorheological fluid is possible. The elastomeric body of 16 is able to undergo a distortion (column 4, l. 13-18). Thus, when a force F is applied to the amount 10 and the orifice passages 32, 30a are closed, the elastomeric body 16 is able to deform outwards to the gap between the lower and the upper portion. This deformation is caused by the pressure of the fluid in the auxiliary chamber 26. Thus, the fluid is able to escape to the region formerly

occupied by the elastomeric boy 16 (black arrows). Even when the orifice passages 32, 30a are closed, a flow of the fluid is possible, leading to a damping effect as described above. Doi itself describes that when the orifice passages 32, 30a are closed “the loss factor of the mount is greatly increased as indicated by the hatched section B in Fig. 3” (column 5, l. 36-44). Thus, the arrangement according to Doi is not able to provide a springing function without a damping function.

In contrast to Doi, the damper according to the invention prevents completely a flowing of the electrorheological fluid when a voltage is applied. When a voltage is applied, the viscosity of the electrorheological fluid is changed to an almost solid state of aggregation (p. 4, para 2). Thus, the piston 33 is rigidly coupled without the possibility of relative motion to the housing 31. Depending on the rigid coupling provided by the solid fluid between the piston 33 and the housing 31, an applied force is transmitted directly from the housing 31 to the piston 33. A force or a pressure is not applied to the electrorheological fluid located between the piston 33 and flexible diaphragm 315. Since there is no relative motion between the piston 33 and the flexible diaphragm 315 *it is not possible to provide a pressure that deforms the flexible diaphragm 315*. Thus, a flowing of the electrorheological fluid located between the piston 33 and the flexible diaphragm 315 does not take place. In other words, applying a voltage leads to a cut off the deformation function of the flexible diaphragm 315. Accordingly, in contrast to Doi, the spring mass vibratory force coupler is able to provide a springing function without a damping function.

Furthermore, the continuously variable damper 18 provided by Ivers et al. is not able to reduce the damping effect to zero either (column 4, l. 54-61). The damping coefficient of the damper 18 is “of relatively low magnitude” or “approximately zero” respectively. However, this is not equivalent to zero. The distinction is one of a kind, not degree, in that low damping is still damping, while no damping provides rigidity.

Moreover, an approximately zero damping coefficient is described as a disadvantage (column 1, l. 40-43). Thus, Ivers et al. leads away from the solution

according to the invention. Finally, the assembly provided by Ivers is substantially different to the spring mass vibratory force coupler described by Doi. Thus, it is not possible to incorporate construct features described by Ivers into an assembly provided by Doi.

Doi does not teach a structure whereby all damping is avoided so as to produce a rigid coupling. Ivers also does not teach such a limitation, in that it suggests only that something close to zero damping is possible (though not desired) – however, there is a major effective difference between rigid coupling and damping of very low magnitude. Furthermore, Ivers is of a quite different structural arrangement than Doi, and the examiner has provided no suggestion of why or how one would go about combining these two references. It seems that Ivers was chosen because it teaches continuously variable damping, but it is not clear how one would apply this to the different structure of Doi. Only the present invention provides for an arrangement having both continuously variable damping, and the possibility of rigid coupling through the very same damper, and nothing in these references, alone or in combination, suggests applicant's novel approach. Therefore, these references can not render claims 9-14 obvious.

Wherefore, allowance of all pending claims is earnestly solicited.

Respectfully submitted,

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